Precision Medicine Versus Procrustean Beds

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Procrustes, a son of Poseidon from Greek mythology, had a bed that he claimed would fit anyone. He lived on the sacred way between Athens and Eleusis and would invite every passerby to spend the night. If the visitor were too tall for the bed, then their feet would be chopped off, and if they were too short for the bed, they would be stretched until they were the same length as the bed—a gruesome way to ensure “one size fits all.” Thus, a Procrustean bed has become proverbial for arbitrarily forcing something to fit into an unnatural system.

In this issue of Anesthesia & Analgesia, Iravani et al.1 discuss a potential way to bring the practice of medicine back to using individualized approaches to the care of patients instead of solely relying on homogeneous practice patterns. As they state, and many others have proposed, “...the perioperative surgical home or enhanced recovery programs tend to emphasize the creation of standardized care pathways and protocols.” Certainly, the objective of the advocates of these programs is less nefarious than those of Procrustes; however, these pathways may ignore the substantial patient variability that exists as they attempt to decrease variability in the delivery of care. On the other hand, Iravani et al.1 propose the use of precision medicine that takes into account the fact that each person has a unique susceptibility to disease and metabolizes drugs differently. Understanding this, the ideal way to treat patients is not a “one size fits all” approach, but rather, to design an individualized plan of care for each patient.

Irvani et al.1 focus on the area of genomic testing, noting that many areas of medicine have already benefited from the discoveries made, but then they lament the fact that despite a wealth of genomic information “…the field of anesthesiology has not yet benefited clinically from such discoveries.” They posit that a likely reason for this is that the relationship between genotype and phenotype is highly complex when it comes to pharmacokinetic and pharmacodynamic variability.

The authors go on to query whether precision medicine can ever realistically be achieved within clinical anesthesia practice. For this laudable goal to become a reality, the causal relationships between genotypes and phenotypes of interest must be established, the complicated nature of confounding variables understood, and just as with other point-of-care testing devices, technology must be developed to permit rapid return of genetic testing results, just as with other point-of-care testing devices. Thus, Irvani et al.1 leave us a bit despondent when they muse “…if and when the predictive power of genotyping can ever be harnessed in the perioperative setting.”

Certainly, advancements in genetic testing can enhance precision medicine, but it is meant to address individual variations not only in genes but also in patients’ demographics, environments, and lifestyles.

Although advancements in genetic testing can certainly advance precision medicine, personalized medicine is intended to address variations not only in genes, but also in patients’ demographics, environments, and lifestyles. Fortunately, we presently have the ability to provide personalized, patient-centered care in various ways that fit perfectly within the perioperative surgical home model.2,3

One example is that there is no need to wait for further technological advancements to improve postoperative pain management, and it should not solely be based upon the preference and understanding of the practitioner and thus comfort level with analgesics. Although advancements in genomics will likely help us choose which specific opioid to use, we do not need to wait for this to happen because right now, we can simply ask patients what has or has not worked for them in the past. In our experience, practitioners often attempt to reinvent the wheel instead of talking with patients to get this information. We should not delay in encouraging clinicians to employ more nonopioid analgesic options.

We must remember that pain is a subjective experience, differing widely from person to person. Thus, perioperative education and analgesic plans should be patient specific rather than following a Procrustean “one size fits all” approach. The American Pain Society notes that patients engaged in collaborative, shared decision making with their providers have improved health outcomes.4 They recommend that “pain treatment and goals should be tailored to the needs, desires, and circumstances of individual patients.” This means that providers should present evidenced-based education to patients in a manner such that patients and their families can make better decisions about how to proceed. In addition, appropriate patient expectations should be set regarding pain and analgesia. This
should be an integral part of patient, family, and caregiver preoperative discussions.

What is needed is patient engagement so that their preferences and values are reflected. Lyon et al suggest that a more flexible and individualized approach should be used instead of strictly adhering to the published enhanced recovery after surgery protocols. It has been suggested that evidenced-based pain management approaches that consider the patients’ specific needs will lead to improvement in their perioperative experience. The perioperative pain management plan must incorporate patient-specific preferences and goals for patient-specific outcomes related to pain control and function.

In summary, we welcome the opportunity to integrate precision medicine into perioperative clinical care. As this area is being developed, we should recognize that there are already ways available, as described for perioperative pain, to focus on individualized precision care using careful patient assessment and planning.

If we believe the words of William Osler—the good physician treats the disease; the great physician treats the patient who has the disease—we will not force our patients to lie in a Procrustean bed.

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REFERENCES